REMARKS

This application has been carefully reviewed in light of the Office Action dated August 13, 2002. Applicant has amended claims 1, 4, 10 and 13. Reconsideration and favorable action in this case are respectfully requested.

The Examiner has rejected claims 1-19 under 35 U.S.C. §103 as being unpatentable over U.S. Pat. No. 4,776,012 to Zscheile, Jr. in view of "Applied Cryptography, Second Edition", to Schneier (hereinafter "Schneier"). Applicant has reviewed these references in detail and does not believe that they disclose or make obvious the invention as claimed.

The Zscheile reference addresses a circuit for generating a "composite" pseudo-random number sequence (PN sequence) from multiple component PN codes. The composite PN sequence is generated by performing a logical exclusive-or operation on the outputs of three separate component PN sequence generators (see Figure 1 and column 2, lines 18 – 34). The composite PN sequence generator produces a "long" PN sequence that has a length equal to the product of the lengths of the component PN sequence generators. This PN sequence would bear no resemblance to any of the individual PN sequences generated by the component PN sequence generators.

The present invention provides an entirely different PN sequence from two or more PN sequence generators. Rather than performing a logical operation on the outputs of multiple PN sequence generators, the outputs of the PN sequence generators are concatenated to produce an augmented PN sequence.

This aspect of the invention is best illustrated in Figure 1. The output of the augmented PN sequence generator is the output of the PN0 sequence generator until point INS_POS. At this point, the output of the augmented PN sequence generator becomes the output of the PN1 sequence generator for a length of SEG_LTH. After this portion of the

PN1 sequence (ending at RET_POS), the PN0 sequence resumes. As shown in Figure 3, this technique can be used with multiple insertions from multiple PN sequence generators.

The present invention provides a significant benefit - insertion of a one or more segments of arbitrary length at respective arbitrary points in a PN sequence creates a PN sequence which is almost impossible to decipher.

In order to distinguish the present invention, which concatenates PN sequences, or portions thereof, from composite PN sequence generators, the term "combining" has been changed in independent claims 1 and 10 to "concatenating". Dependent claims 4 and 13 have been amended for proper antecedent basis.

Neither the Zscheile nor Schneier references shows a PN sequence generator that produces an augmented sequence by *concatenating* a plurality of component pseudo-noise sequences, or portions thereof. Accordingly, Applicant respectfully requests allowance of independent claims 1 and 10. Since dependent claim groups 2-9 and 11-19 are dependent upon claims 1 and 10, respectively, Applicant requests allowance of these claims as well.

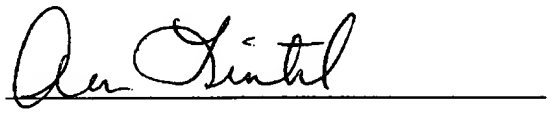
An extension of three months is requested and a Request for Extension of Time under § 1.136 with the appropriate fee is attached hereto.

The Commissioner is hereby authorized to charge any fees or credit any overpayment, including extension fees, to Deposit Account No. 20-0668 of Texas Instruments Incorporated.

Applicant has made a diligent effort to place the claims in condition for allowance. However, should there remain unresolved issues that require adverse action, it is respectfully requested that the Examiner telephone Alan W. Lintel, Applicant's Attorney at (972) 664-9595 so that such issues may be resolved as expeditiously as possible.

For these reasons, and in view of the above amendments, this application is now considered to be in condition for allowance and such action is earnestly solicited.

Respectfully Submitted,



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January 28, 2003
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Version with marking to show changes made:

1 (Amended). A method of encrypting a digital signal comprising:

generating a plurality of pseudo-noise sequences;

[combining] concatenating said pseudo-noise sequences, or portions thereof, to generate an augmented pseudo-noise sequence; and

encrypting a data stream using the augmented pseudo-noise sequence.

4 (Amended). The method of claim 1 wherein said [combining] concatenating step comprises the step of inserting a segment of a first pseudo-noise sequence into a second pseudo-noise sequence at an arbitrary position in said second pseudo-noise sequence.

10 (Amended). Apparatus for encrypting a digital signal comprising:

two or more pseudo-noise sequence generators

circuitry for [combining] concatenating said pseudo-noise sequences, or portions thereof, to generate an augmented pseudo-noise sequence; and

an encrypting circuit for correlating the augmented pseudo-noise sequence with a data stream.

13 (Amended). The apparatus of claim 10 wherein said [combining] concatenating circuitry comprises circuitry for inserting a segment of a first pseudo-noise sequence into a second pseudo-noise sequence at an arbitrary position in said second pseudo-noise sequence.